Puget Sound Action Team
Office of the Governor

Winter 2005

Sound Waves

Working in partnership to protect Puget Sound

Vol. 20, No. 1

Projects take shape in Hood Canal

Left: Shawn Green holds a female chum salmon. Right: Fishermen transfer carcasses of chum salmon to land for disposal.

Photo by Tami Pokorny, Jefferson County Natural Resources

In fall 2004, the Puget Sound Action Team awarded $187,000 to the **Skokomish Tribe** and **American-Canadian Fisheries, Inc.**, to improve levels of dissolved oxygen in Hood Canal.

In recent years, tribal fishermen disposed of chum carcasses directly into the marine waters of Hood Canal after removing their eggs—or roe—for lucrative international market sales. That practice was once viewed as beneficial to marine life, but it is most likely contributing to the low levels of dissolved oxygen by adding increased nutrients to the waters.

Chum carcasses may account for 14 to 20 percent of the overall nitrogen contribution into Hood Canal. Late season chum have little or no value for market sales due to the texture and color of the fish.

The tribe educated its fishermen through workshops about the low levels of dissolved oxygen and their contribution to the problem. American-Canadian Fisheries, a Bellingham fish processor, provided net pens for carcass disposal and purchased salmon roe from the tribe.

"The response from the community and the fishermen and women who worked hard to keep the carcasses out of the water has been very positive," said **Lalena Amiotte**, project coordinator for the Skokomish Tribe. "We have stepped up to stop fishing practices that contribute to unhealthy water. We all have to work together to find solutions."

Due to their collaborative effort, the Skokomish Tribe and American-Canadian Fisheries prevented approximately 300,000 chum, or about 2.8 million pounds of chum carcasses, from entering Hood Canal during the 2004 chum run. These two groups sent the higher quality salmon to a food bank.

The tribe is turning the remaining carcasses into organic compost for use on community gardens, tribal timberlands and on a state highway project.

• For more information about other corrective actions in Hood Canal, contact Duane Fagergren, director of special projects with the Puget Sound Action Team, at (360) 725-5438 or dfagergren@psat.wa.gov. For more information on other corrective actions in Hood Canal, visit: www.psat.wa.gov/Programs/hood_canal and follow the link to Corrective Actions Project Updates.

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ORCA NEWS

Orcas to gain greater protection

Orcas are a treasured symbol of the Pacific Northwest, but limited food supplies, toxic contamination and human disturbance from boats and underwater noise have contributed to a steep decline in their population.

Believed to number between 100 and 200 individuals before 1960, the southern resident orca population was fewer than 70 in 1973 after marine parks captured or killed them during capture attempts. Their recovery since then has had setbacks with two sharp population declines, including a 20 percent decline from 1996 to 2001. As of October 2004, their population was 85.

Photo by Mark Sears

A young orca, K-38, hitches a ride on its mother's (K20) back.

Puget Sound orca population welcomes new babies in 2004

In the final two months of 2004, four southern resident orcas became new mothers. The orca calves are referred to by their scientific names—L104, L105, J40 and K38—denoting their membership in the J, K or L pods.

K38 is the first calf born to K20 (a.k.a. Spock and previously thought to be a male). The other orcas—Samish, Ophelia and Jelly Roll—are all experienced mothers.

While each of the three pods welcomed at least one new member in 2004, their populations are still very low, compared with historical numbers. Additional conservation efforts are still needed to protect Puget Sound's resident orcas.

Orcas may get ESA listing

On December 22, 2004, **NOAA Fisheries** formally proposed listing the southern resident orcas as threatened under the federal Endangered Species Act (ESA). This proposal reverses a July 2002 determination that this population was not sufficiently distinct to be listed under ESA.

NOAA Fisheries designated the southern resident population as a depleted stock under the Marine Mammal Protection Act in May 2003. The Washington Fish and Wildlife Commission put all orca on the state's endangered species list in 2004. Canada has listed the southern residents as endangered.

The ESA may provide more protection for the orca than does the Marine Mammal Protection Act, because the ESA requires designation and protection of critical habitats for a listed population.

"The new listing both recognizes that the southern residents constitute a unique, significant and irreplaceable cultural community, and calls for revitalizing the essential habitat that the whales depend on to survive," said **Howard Garrett**, co-founder of Orca Network.

Orca awareness

In 2004, the Puget Sound Action Team awarded $45,000 in Public Involvement and Education (PIE) funds to Orca Network to raise awareness about the southern resident community of orcas, and the importance of providing them with healthy and safe habitats.

NOAA Fisheries and the **Washington Department of Fish and Wildlife** are working on a joint conservation plan for the southern resident whales. This effort is closely coordinated with a similar plan being developed in Canada.

• For more information about Orca Network visit www.orcanetwork.org .

Sound Waves

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Editor:
Toni Weyman Droscher
(360) 725-5454
tdroscher@psat.wa.gov

Distribution:
Gigi Williams
(360) 725-5454
gwilliams@psat.wa.gov

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If you would like this document in an alternate format, call:
Olympia area:
(360) 725-5444
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PUGET SOUND ACTION TEAM
Office of the Governor

Whatcom County businesses are seeing green

By Derek Long, Sustainable Connections

In early 2004, the Puget Sound Action Team, along with the Bullitt Foundation, Russell Family Foundation and the city of Bellingham, provided **Sustainable Connections** with funding to help launch its Green Building Program. The program promotes designing, constructing and maintaining buildings and landscapes in northwest Washington that minimize harm to the environment, are profitable and are healthy places to live, work and play.

Sustainable Connections is a network of businesses in Whatcom, Skagit, Island and San Juan counties whose mission is to empower local businesses and consumer behavior that promotes a vibrant community and a healthy environment.

Green building practices promote energy efficiency, conserve water, reduce waste, prevent pollution, use resource-efficient materials and improve indoor air quality. The many compelling economic benefits to green building include reduced operating costs, increased return on investment, increased productivity and human health, enhanced image and marketability, attained regulatory requirements and reduced liability.

Working with builders

As the Green Building Program was forming, we set out to meet people in the building industry and related associations, such as the Building Industry Association of Whatcom County (BIAWC) and the local chapter of the American Institute of Architects. A survey of the industry and associations revealed that members wanted information about how to better market and communicate the benefits of green building and low impact development to their clients.

Armed with this information, we decided to promote programs that not only encourage better energy and water conservation, stormwater management, indoor air quality, and other sustainable features, but also come with a brand that helps with marketability. Sustainable Connections promoted the Built Green™ program for residential construction and the Leadership in Energy and Environmental Design (LEED)™ program for commercial construction.

We sponsored five events in 2004 that attracted a total of 100 professionals. The BIAWC adopted the Built Green program in mid-2004, and the number of LEED-accredited professionals in northwest Washington has grown from four to 16.

Local governments have also demonstrated a commitment to this program. Whatcom County sponsored two workshops in December 2004 for staff of area public works and planning departments. Fifty staff members attended and several volunteered on weekends and evenings to work with Sustainable Connections to discover how to reduce barriers to and create incentives for green building projects.

Going for silver

Several city and county council members are supporting our efforts to pass a green or high performance building resolution that requires all new public buildings to meet the LEED Silver standard, which is a nationally accepted rating system for green building. This resolution is based on similar measures that Seattle and King County adopted years ago. Gov. Gary Locke's executive order in December 2004 requires the same for state buildings.

Sustainable Connections has set the bar high for 2005, building on the momentum from 2004. Staff from government and the private sector are working together to learn best design and construction practices that will lead to a better understanding of how to protect water quality, as well as provide many other benefits to the environment and communities.

• Derek Long is the program and development director with Sustainable Connections. For more information visit the Sustainable Connections Web site at www.SustainableConnections.org.

Photo by Brennan Schumacher

A green roof located adjacent to a roof-top patio for employees provides a beautiful setting, saves energy and reduces and treats stormwater runoff. Photovoltaic panels in the background provide a portion of the electricity at the White Rock, B.C. Operations Building.

Helping communities help Puget Sound with PIE

The Puget Sound Action Team has requested $1 million from the state legislature to help communities protect and restore Puget Sound. If approved, the Action Team will distribute this money through the **Public Involvement and Education (PIE)** fund. At the heart of PIE is the belief that support for local education is the best investment the state can make for Puget Sound. The Action Team plans to issue a request for proposals this summer. For more information about the PIE fund, visit the Action Team's Web site at www.psat.wa.gov or contact **Anne Criss** at (360) 725-5439 or acriss@psat.wa.gov.

▶ Solutions: Low Impact Development

LID gains popularity around Puget Sound

Low impact development (LID) practices started to become a part of the landscape in the Puget Sound region just a few short years ago. Today, numerous local governments have passed ordinances designating pilot LID projects or incorporating LID into development planning. Many developers are incorporating LID into their projects. A growing number of private engineering firms are becoming experts in LID planning.

Stormwater engineers, planners, developers, elected officials and others recognize the value of the LID approach. When properly designed and installed, these practices manage stormwater more efficiently and offer greater protection to water quality and aquatic resources than conventional technologies. The practices also beautify neighborhoods, reduce traffic speeds and recharge underground sources of water.

The following are examples of the many LID projects completed or in progress around the Sound, including those in heavily urban areas and suburban and rural areas.

Action Team photo

Bill Shoemaker (left), public works director for the city of Sumner and Robert Holler (right), associate planner, stand on pervious pavers at the LID pilot project in Sumner.

City of Sumner

Low Impact Development Pilot Project

Residential Development

9 units on 2.7 acres

Pierce County

LID practices used:

- Pervious pavers in driveways.
- Vegetated swales with underdrains.
- Amended soils.
- Sidewalk on only one side of street.
- Curvilinear street design.
- Planned monitoring.

A downtown lot in Sumner, surrounded by older residences and overrun by blackberries, is the site of a pilot project that used low impact development practices. Developers completed the pilot project in 2004. Bill Shoemaker, public works director for the city of Sumner, and Robert Holler, an associate planner, negotiated an agreement with Paul Hunt of Developers Northwest and Paul Tillman Construction to use innovative techniques to control stormwater runoff in the development.

"I keep three men busy just cleaning out the city's stormwater detention ponds," Shoemaker said. "I think maintenance in the new low impact development will be less than we spend maintaining the detention ponds."

City of Olympia

Cooper Crest Low Impact Development

Residential Development

140 units on 70 acres

Thurston County

LID practices used:

- Dedicated tree tract encompassing 55 percent of subdivision.
- 18-foot wide streets with limited parking and traffic calming.
- Yards amended with composted soil.
- Bioretention (rain gardens).
- 20-foot wide areas to infiltrate rooftop runoff.
- Runoff that disperses into forest.
- Pavers on private road and porous concrete sidewalk.

Cooper Crest is Olympia's first subdivision that meets the low impact regulations the Olympia city council adopted in 2001. Construction is underway and homes are selling well. Approximately half the homes will be certified with the Leadership in Energy and Environmental Design (LEED™) designation (see page 3). The developer, builder and various local groups and businesses are sponsoring a home expo, which is open to the public. The expo will run on weekends March 26 - May 1. Contact: Andy Haub, city of Olympia, (360)753-8475, ahaub@ci.olympia.wa.us.

King County

Built Green/Low Impact Development Demonstration Ordinance Projects

In King County, three projects are in the works and will be using LID techniques. The county has granted preliminary approval to the **Greenbridge** project in White Center, an existing single multi-family residential and commercial low income development in White Center, and the **Shamrock** project north of Renton, a new single-family residential development. Site development is underway at both locations.

On Vashon Island, a developer has submitted a formal application for the **Sunflower** project, a single-family residential development.

LID practices to be used at Greenbridge:

- Narrower roads.
- Open swales rather than underground pipes.
- Redevelopment at higher density.

LID practices to be used at Shamrock:

- Bioretention (rain gardens).
- Open swales rather than underground pipes.
- Soil amendment.

LID practices to be used at Sunflower:

- Retaining native trees and vegetation.
- Bioretention (rain gardens).
- Limited footprint houses.
- Permeable pavement.

*• For more information about low impact development, contact **Bruce Wulkan**, stormwater program lead for the Puget Sound Action Team, at (360) 725-5455 or bwulkan@psat.wa.gov.*

More LID projects on the horizon

• Roche Harbor Project, San Juan Island. The Roche Harbor project is a 177-acre, 276-unit residential and commercial development located within the Roche Harbor Resort property on San Juan Island. The project uses low impact, sustainable development techniques.

The first phase of construction is scheduled to be completed in summer 2005 and will include waterfront improvements along the marina, a main street, five townhouses and 12 homes/cottages. LID techniques include: narrow streets and alleys, bioretention (rain gardens), water-efficient landscaping, compost-amended soil, porous concrete alleys, and rainwater harvesting.

Contact **Brent Snow**, general manager, at (800) 451-8910 or Richard Hobbs, project director, at (360) 317-5024.

• U. S. Environmental Protection Agency grant will create new development standards for big box retailers. The EPA awarded King County a grant to work cooperatively with a national big box retailer to incorporate low impact development techniques into the design of new stores nationwide. King County is currently in discussions with one company and may soon develop a formal partnership on this project. The new development standards may also help other large retailers reduce stormwater runoff from their properties.

Contact **Katie Vanderpool,** King County Department of Natural Resources and Parks, (206) 296-8362.

Learn how to develop property while using LID techniques

The Action Team, along with Washington State University Pierce County Extension, is now offering comprehensive and new information about LID in ***Low Impact Development: Technical Guidance Manual for Puget Sound.***

For a copy of the guidance manual for low impact development, visit http://www.psat.wa.gov/Programs/LID.htm or call (800) 54-SOUND.

▶ *LID Local Heroes*

Every day, thousands of individuals, organizations, and tribal and local governments are making an enormous difference to protect and restore the environment of Puget Sound. This dedication and commitment by all local heroes is essential to help save the Sound for today and future generations.

Awarding Innovation

Seattle Public Utilities, Natural Drainage Systems Program

In fall 2004, Harvard University's Kennedy School of Government awarded **Seattle Public Utilities** (SPU) the prestigious *Innovations in American Government* award for its Natural Drainage Systems program. Known as the *Oscars* of good government, the award includes a grant of $100,000 to help expand the innovative program.

SPU has developed five natural drainage projects to manage stormwater runoff in the past four years. In fall 2004, it completed the Broadview Green Grid in the Piper's Creek Watershed, which covers 15 city blocks. SPU plans to use the approach in several projects, including the High Point housing redevelopment, the south lot at Northgate Mall and in the Pinehurst neighborhood.

To reduce the adverse effects of stormwater runoff on to creeks, lakes and bays in Seattle, the Natural Drainage Systems program takes an innovative approach to standard street design. Features include narrower streets, open conveyance and bioretention swales to manage stormwater runoff instead of catch basins and closed pipes. Natural drainage projects reduce flooding, improve water quality, slow down traffic, increase safety for pedestrians and beautify neighborhoods.

"The Natural Drainage Systems team is honored to be recognized for our innovative stormwater designs," said **Denise Andrews**, surface water planning manager for SPU. "Our work reflects the desire by our elected officials and citizens to restore our waters and achieve high standards for water quality."

University of Washington researchers monitored stormwater runoff at the Street Edge Alternatives project site in Northwest Seattle since 2000. The monitoring results are impressive: The design decreased total stormwater volume by approximately 98 percent during this time period.

• For more information about SPU's Natural Drainage System, visit: www.seattle.gov/util/About_SPU/Drainage_&_Sewer_System/

Photo courtesy of Seattle Public Utilities

Bioretention swales manage stormwater runoff at the Broadview Grid project in Seattle

News from Around Puget Sound

Thurston County

Large-scale conservation effort to aid Nisqually estuary

At 699 acres, the Nisqually plan will be the largest single estuarine restoration project ever completed in Puget Sound. Combined with the Nisqually Tribe's restoration efforts on Red Salmon Slough, the Nisqually delta will see nearly 1,000 acres of restored intertidal marshes, mudflats and estuary channels.

Action Team photo

Aerial photo courtesy of
U.S. Fish & Wildlife Service, Nisqually NWR

Above: Canoeists enjoy a fall day on the water in the Nisqually estuary.

Left: Aerial view of the Nisqually delta and estuary.

Significant changes are in the works for the Nisqually estuary, one of the prized and relatively undeveloped areas along Puget Sound's rapidly urbanizing I-5 corridor.

In November 2004, the U.S. Fish & Wildlife Service adopted the **Nisqually National Wildlife Refuge Final Comprehensive Conservation Plan**. The plan will guide management of the refuge for the primary purpose of fish and wildlife conservation for the next 15 years and includes the following elements and highlights:

- **Refuge boundary**—adds 3,479 total acres to the refuge, including 1,952 acres of freshwater wetland, riparian and forested habitat.
- **Habitat restoration**—restores 699 acres of historic estuarine habitat and 263 acres of freshwater habitat.
- **Public education**—expands programs, partnerships and facilities to serve 15,000 students annually and other audiences.
- **Wildlife observation and hiking**—reconfigures and enhances the trail system to fit new habitat designs and other refuge features.
- **Hunting, fishing and boating**—numerous changes, including opening 191 acres adjacent to state-owned lands to create a single 808-acre area for hunting during waterfowl season and implementing boat restrictions to improve actions to protect wildlife.

Staff from the refuge will develop more detailed implementation plans for public education, fish and wildlife monitoring, integrated pest management, waterfowl hunting and other issues to help carry out the conservation plan.

"This new vision for the refuge provides a tremendous opportunity to more effectively protect the Nisqually delta and lower watershed," said **Jean Takekawa,** manager of the Nisqually National Wildlife Refuge (NNWR). "Restoring such a substantial part of the historic Nisqually estuary will greatly benefit fish and wildlife that depend on estuaries, and will help to recover salmon."

Restoring the Nisqually estuary is expected to take several years, with the first two to three years devoted to site-specific designs and permit issues. The actual restoration work will include breaching the existing Brown Farm Dike and modifying other parts of the dike system to reconnect the historic slough system, allow tidal circulation across the delta, and reestablish a more natural and functional estuarine system.

• *Contact Jean Takekawa at (360) 753-9467 or Jean_Takekawa@fws.gov. For more information on the NNWR and the conservation plan, visit http://nisqually.fws.gov.*

Puget Sound Action Team Local Liaisons:

Clallam County
Jefferson County
Kitsap County
John Cambalik
(360) 582-9132

San Juan County
Skagit County
Whatcom County
Hilary Culverwell
(360) 676-2233

Mason County
Thurston County
Stuart Glasoe
(360) 725-5449

Island County
Snohomish County
Linda Lyshall
(425) 640-3557

King County
Pierce County
Kathy Taylor
(253) 333-4920

San Juan County

The San Juan Islands are home to more than 100 marine protected areas, ranging from sites devoted to research and historical preservation, to sea cucumber reserves and marine bird refuges.

While these areas have different purposes, they all have in common many miles of marine nearshore areas, which, to date, have had little or no regulatory protection. Their original intent was to protect historical and natural resources on the land, not in the water.

To help address this gap and provide better protection for marine nearshore environments, the Northwest Straits Commission (NWSC) and the San Juan Marine Resource Committee (MRC) sponsored a work session in November 2004 for more than 30 site managers representing federal, state, local and tribal governments and nonprofit organizations. Participants shared management challenges and discussed possible solutions.

"It's important to realize that an area isn't protected just because it's in public ownership," said **Ginny Broadhurst**, marine program coordinator for NWSC. "It takes active management and partnerships with local organizations. We're not there yet in the San Juans."

At the workshop, participating agencies and organizations made a commitment to support and help carry out the San Juan MRC's Marine Stewardship Area effort (a program to protect San Juan County marine resources through stewardship and education), share data and information, and work closely with the tribal governments to conserve marine areas.

"The workshop for marine managers was one of the more seminal moves the Northwest Straits Commission has made in San Juan County," said Jim Slocomb, chair of the San Juan MRC. "At the end of the day, there was obvious opportunity for the disparate managers to work together more closely, and there was a willingness to do so."

• *Contact **Ginny Broadhurst,** NWSC, (360) 676-2011.*

Photo by Ginny Broadhurst

Dave Castor (Washington State Parks), Kolleen Irvine (U.S. Fish & Wildlife Service) and Kari Koski (Whale Museum) participated in a tour of Yellow Island and other San Juan County protected areas during a recent workshop.

Snohomish County

The **Snohomish County Intertidal Habitat and Juvenile Dungeness Crab Research Study** is a proactive step to assess and protect nearshore resources. It will provide the most extensive and geographically specific data about intertidal vegetation and substrates for all of Snohomish County.

The Tulalip Tribe, Washington Department of Fish and Wildlife, and the Snohomish County Marine Resources Committee (MRC) will use this information to further habitat research, with particular focus on juvenile salmon and crab. The information will also enable research efforts to be tied to adjacent counties, including Island and Skagit.

"This project will allow resource managers to better quantify the impacts of development on the resource as a whole, and not just at the development site," said **Mike McHugh**, shellfish manager for the Tulalip Tribe and in charge of the study.

The Tulalip Tribes collected the geographical information systems data for Snohomish County, with partial financial support from the Snohomish County MRC. Combined efforts, including the Stillaguamish Tribe's mapping of Port Susan and the Tulalip Tribes' mapping of the Tulalip Reservation, Gedney Island and south Snohomish County, have created a nearly complete database of Snohomish County's shoreline habitat.

Snohomish County, other local shoreline jurisdictions and the general public will be able to use the data for nearshore planning and shoreline management.

This project is duplicating a project that maps juvenile chinook habitat that the Skagit System Cooperative started in Skagit Bay.

"The juvenile salmon mapping effort initiated in Skagit Bay has given us an excellent method for resource assessment," McHugh said. "With a couple of small modifications we've figured a way to add to the salmon mapping effort and adapt it for our work on Dungeness crab."

• *Contact Mike McHugh, Tulalip Tribes Shellfish Biologist, at (360) 651-4493 or Sean Edwards, Snohomish County MRC lead staff, at (425) 388-3464 x4669.*

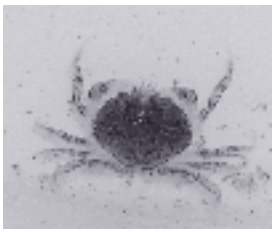


Photo by Don Velasquez

A new study will enhance research on the habitat of juvenile crab in three Puget Sound counties.

Science News

Research Conference: Science for the Salish Sea

Come learn what researchers are studying in the Puget Sound and Georgia Basin region during the seventh **Puget Sound Georgia Basin Research Conference**, Tuesday, March 29, through Thursday, March 31, at the Washington State Convention and Trade Center in Seattle.

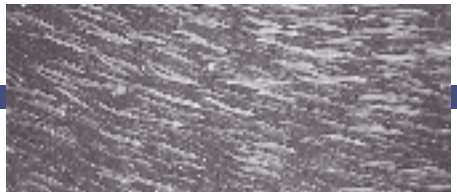
The conference theme is *Science for the Salish Sea: a sense of place, a sense of change.*

Building on the 2002 conference, organizers expect up to 1,000 scientists, representatives from First Nations and tribal governments, resource managers, community leaders, policy makers, educators and students from Canada and the U.S., to gather and share science and information about the condition and management of the ecosystem that spans the Puget Sound-Georgia Basin region.

The three-day program will feature 60 oral sessions, panels and workshops addressing such topics as contaminants in the food web, effects of tourism on marine ecosystems, Coast Salish traditional knowledge and climate change. More than 100 technical posters will be on display during a Poster Gala Opening and throughout the three days of the conference.

On-line registration, conference program and additional information about the conference may be found at: www.engr.washington.edu/epp/psgb/index.html.

Below are just three samples of the diverse poster and presentation topics coming up at the conference.



POSTER: The Incredible Egg Hunt—Mapping Forage Fish in the Northwest Straits

Principal Author: **Gary Wood,**
Northwest Straits Commission

Forage fish spend most of their lives in relative obscurity in nearshore waters. Forage fish, such as sand lance and surf smelt, spawn high on sandy beaches, laying eggs indistinguishable from sand grains. Little is known about their habitats or distribution despite their critical importance to salmon, shorebirds and other wildlife. The Northwest Straits Commission, Washington Department of Fish and Wildlife and nine collaborating partners co-sponsored a three-year effort to sample and map hundreds of miles of Puget Sound beaches where forage fish spawn. Fish and Wildlife staff, teams of citizen volunteers and agency staff sampled thousands of sites. Scientists, local planners and people throughout the region may benefit from the geographic information system (GIS) maps and data sets, which show miles of spawning habitats.

Sand lance photo by Randy Shuman, King County

PRESENTATION: Will Global Warming Impact Eelgrass in the Pacific Northwest?

Author: **Ronald M. Thom**,
Pacific Northwest National Laboratory

Eelgrass is an important nearshore plant that provides essential habitat for forage fish, juvenile salmon and other fish. Changes in climate influence the abundance and productivity of eelgrass in the coastal waters of the Pacific Northwest. Although light passing through the water column and depth of the water are important factors in eelgrass abundance, little is known about how changes in climate affect eelgrass distribution. In this presentation, the author will present compelling evidence that variations in temperature and sea level (both associated with climate change) are important to the abundance and productivity of eelgrass in Puget Sound. This relationship between a shift in weather and sea level, under a global change in climate in the region, would predictably affect eelgrass production and distribution.

Eelgrass photo by John Southard, Battelle Marine Sciences Laboratory

PRESENTATION: Where and Why Do Bivalves Grow Best?

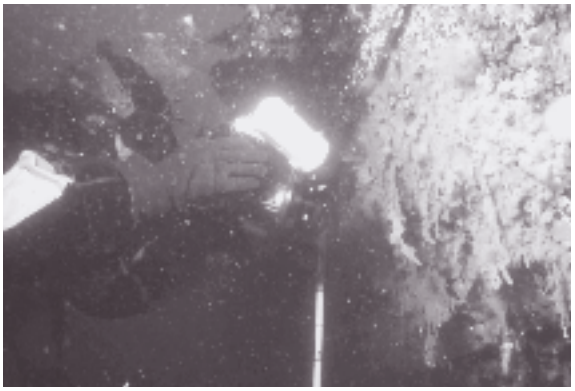
Author: **Alan Trimble,**
University of Washington

Circulation and productivity in the waters of Puget Sound have intrigued oceanographers for decades, but little attention has been paid to how the organisms along the shore respond to these patterns. Bivalves—mussels, oysters and clams—serve as indicators of water quality and food quantity (their size reflects relative food abundance). Researchers placed juvenile oysters in intertidal sites in south and central Puget Sound during summers of 2002-2004. Growth rates varied significantly among sites, with generally higher growth in south Puget Sound. The study suggests that suspension feeders, such as bivalves, which live in the intertidal zone, experience well-mixed conditions (good nutrients and water quality) through much of Puget Sound, except in enclosed inlets.

Oyster bed photo by Action Team

Quick action helps rid area of invasive pest

Recently, a researcher from the National Oceanographic and Atmospheric Administration confirmed the identity of a highly invasive creature found at the Edmonds Underwater Park. The creature is actually a colony of tiny animals that live together and form large, ropey mats that resemble sponges.



© Kirby Johnson

A diver shines a light on a colony of sea squirts.

This **sea squirt** *(Didemnum lahillei)* is not native to Puget Sound.

"It originates in Europe, and no ones knows how it got here," said **Kevin Anderson**, lead staff for aquatic nuisance species with the Puget Sound Action Team. "A similar species has already caused significant problems on the New England coast where it smothered marine life and interfered with fishing, aquaculture and boating activities."

In Puget Sound, as on the East Coast, this particular sea squirt has no natural predators and could spread rapidly.

In November 2004, the state departments of Fish and Wildlife and Ecology, Bruce Higgins, volunteer coordinator at the park, volunteer divers, and staff from the city of Edmonds took quick action to kill the sea squirt to get it out of the Sound and prevent its spread. Volunteer divers continue to find and kill smaller colonies in the park.

Concerned citizens and interest groups also worked with Fish and Wildlife to develop a response plan to address the potential problem beyond the borders of the underwater park. Fish and Wildlife contracted with Gretchen Lambert, an expert on sea squirts at the University of Washington, to conduct a series of workshops to train volunteers how to identify and sample suspected populations.

The Action Team will help to prepare educational materials and map the presence of the invader as divers and others report them. Fish and Wildlife will assess the risk that the sea squirt presents to determine the need for a program to control its presence and spread in the Sound.

*• Contact **Scott Smith,** Washington Department of Fish and Wildlife at (360) 902-2724 or smithsss@dfw.wa.gov.*

Ban on flame retardants heads to legislature

Recent studies reveal that breast milk of women living in the Puget Sound region contains high levels of polybrominated diphenyl ethers (PBDEs). Manufacturers of everyday items (from computer casings to carpet pads to foam cushions in chairs and couches) use PBDEs as flame retardants to reduce the ability of these items to catch fire.

Hood Canal sediments and tissue from five fish species from Puget Sound indicate that PBDEs are making their way into the marine food web. Wild chinook salmon living in Puget Sound have the highest levels of PBDEs of those fish studied.

In 2004, Gov. Gary Locke requested that the state develop a Chemical Action Plan for PBDEs. In January 2005, the Washington Department of Ecology presented an interim plan to Gov. Christine Gregoire. As of February 2005, a bill in the Washington state house and senate contained recommendations from the plan, including a ban on the most common forms of PBDEs. The bill also includes a strategy to phase out a third form of PBDEs by early 2006.

While scientists don't know the specific health effects of PBDEs on people and wildlife, research on laboratory animals suggest that higher doses of PBDEs can cause neurological and thyroid damage.

How PBDEs get into the environment remains a mystery, but sources may include stormwater, municipal wastewater and household dust.

*• For more information about PBDEs see the **Northwest Environment Watch Web site:** www.northwestwatch.org/PBDEflash.htm.*

*Download the Chemical Action Plan for PBDEs from **Washington Department of Ecology's Web site:** www.ecy.wa.gov/biblio/0403056.html.*

*For more information about the Puget Sound Action Team's monitoring and science programs, contact **Sarah Brace,** science liaison, at (360) 725-5464.*

News You Can Use

REPORT: Puget Sound needs intensified effort to stay healthy

Despite hard work and some successes, efforts to protect and maintain Puget Sound's health are not keeping pace with the losses, according to the Puget Sound Action Team's ***State of the Sound 2004*** report released in January.

The report highlights significant drops in salmon, orca, marine birds and rockfish populations, and closures of shellfish beds in Puget Sound, as well as a growing dead zone in Hood Canal.

For a copy of ***State of the Sound 2004*** and/or the companion overview, visit www.psat.wa.gov or call (360) 725-5444 or (800) 54-SOUND.

Oil spill in Dalco Passage leads to recommendations

In response to the oil spill in Puget Sound's Dalco Passage south of Vashon Island in October 2004, Gov. Gary Locke and Rear Admiral Garrett of the U.S. Coast Guard created the **Oil Spill Early Action Task Force** to evaluate actions to be taken during the first hours after a spill and to develop recommendations to improve responses to spills during the crucial first 12 hours.

The task force issued its report and the following recommendations on Jan. 5, 2005:

- Increasing public participation in the response planning and opportunities for volunteers to participate in oil spill assessment and response.
- Acquiring appropriate early assessment and remote sensing technologies.
- Improving initial mechanisms to report spills.
- Enhancing community liaison/outreach during spills.
- Strengthening assessment and response procedures for Washington Department of Ecology and the U.S. Coast Guard.
- Pre-positioning equipment to sufficiently respond to potential worst-case spills and holding unannounced drills.
- Incorporating lessons learned from recent spills into Ecology and the U.S. Coast Guard policies, procedures and regulations.
- Updating and preparing additional Geographic Response Plans using a thorough process for public participation.
- Evaluating citizen advisory and involvement models including Alaska's Regional Citizens Advisory Council and Regional Stakeholder Council.
- Creating an independent assessment process to respond to oil spills in the region for regional oil spill response.

• For more information, visit: www.ecy.wa.gov/programs/spills/response/taskforce/tasksforce.htm

Work group goal: Improve the way ships handle ballast water

Ships arriving in Washington ports often discharge ballast water. Ships take on or discharge ballast water for stability and trim while underway and when in port during loading and unloading. This water may contain marine plants, animals and even disease organisms from other parts of the world or from places, such as San Francisco Bay, one of the most highly invaded estuaries on the west coast.

Marine plants and animals that aren't native to an area can damage the state's economy and environment by competing with, preying upon and displacing native or commercial species. They also invade and destroy habitat for native species.

To improve how ships manage their ballast water while in Washington waters, the state legislature created the **Ballast Water Work Group** in 2000.

The work group is studying issues related to ballast water technology, including available and proven technologies to treat ballast water that ships calling on Washington ports could install. The group is identifying services that the industry and the state need to protect the marine environment, such as enforcement and consistency with federal and international standards.

The group will also recommend ways to improve coordination with other west coast states and British Columbia, as well as ways to fund the state's program for ballast water.

The Ballast Water Work Group will issue a report to the legislature by December 2006.

Shipping interests, state agencies, shellfish industry, environmental community and tribal government are members of the work group. Staff from the Governor's executive policy office chairs the group. The Puget Sound Action Team provides staff support to it.

• For more information about the Puget Sound Action Team's aquatic nuisance species program and issues concerning ballast water management, contact Kevin Anderson at (360) 725-5452 or kanderson@psat.wa.gov.

State ferries make the switch to low sulfur fuel

In 2004, Washington State Ferries (WSF) made a number of steps to help improve the quality of air in the Puget Sound region. These steps included modifications to equipment and operations and a switch to cleaner burning fuels. This three-pronged approach will eliminate more than 9,500 tons of pollutants by 2005.

Action Team photo

In 2004, the entire ferry fleet began using low-sulfur diesel fuel. Starting in summer 2004, WSF also began testing ultra-low sulfur diesel on the M/V Elwha, which sails from Anacortes through the San Juan Islands. The U.S. Environmental Protection Agency and the Puget Sound Clean Air Agency are funding the pilot test.

The ferry system also started testing a biodiesel fuel blend called B20 on its Faunterloy-Southworth-Vashon Island route. Seattle City Light provided grant funding for this pilot test. Biodiesel is a renewable fuel made from virgin or recycled vegetable oils, animal fats or recycled restaurant greases. Biodiesel contains almost no sulfur and significantly reduces greenhouse gas emissions.

The pilot test for the biodiesel fuel hit a snag in early December 2004 when the vessels using B20 developed problems with fuel filters getting clogged. At the beginning of the pilot test, the vessels had a few filter clogging problems, but when the weather got colder in December the problems worsened.

"We don't know exactly what is happening," said **Tina Stotz,** environmental manager for WSF. "We're working with the biodiesel manufacturers and the National Biodiesel Board to solve the problem. Our goal is to get the pilot test up and running again as soon as possible."

The pilot tests for the fuel are part of WSF's Clean Fuel Initiative, which is one of many statewide efforts that are in step with Gov. Gary Locke's Executive Order 02-03—Sustainable Practices by State Agencies.

*• For more information on the **WSF Clean Fuel Initiatives** visit: www.wsdot.wa.gov/ferries/environment/fuel/*

Flame retardants found on supermarket shelves

DALLAS—Results of a study published in September 2004 found that flame retardant chemicals, called polybrominated diphenyl ethers (PBDEs), are turning up in foods purchased from supermarkets in Dallas, Texas. (See article on page 9 "Science News" about PBDEs in Puget Sound.)

The study suggests that food may be a key source of the PBDEs.

The report appeared in the Sept. 1, 2004 edition of *Environmental Science & Technology*, a peer-reviewed online journal of the American Chemical Society. The study revealed higher levels of flame retardants in the foods from Dallas area supermarkets than similar market studies from other countries.

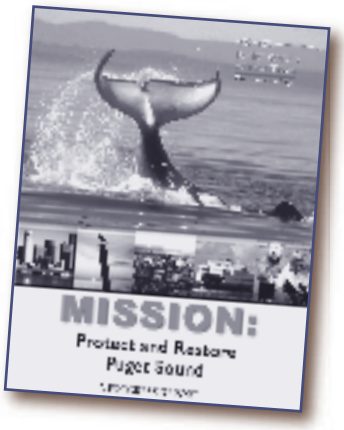
"We found PBDE contamination in all food containing animal fats," said Arnold Schecter, M.D., M.P.H., the study's lead author and an environmental health expert at the University of Texas' School of Public Health in Dallas.

The highest levels were in fish, followed by meat and then dairy products. PBDEs are most soluble in fats, so they tend to accumulate in animal and human tissues.

Schecter plans to extend the research to a larger study of foods from across the United States to better understand how people are exposed to flame retardants through their diets.

• For more information about the study, visit the American Chemical Society's News Service Web page at http://center.acs.org/applications/ccs/application/index.cfm. Enter "PBDE" in the Search field. The publication date is Sept. 1, 2004.

Action Team publication garners national award



The Legislative Research Librarians, a section of the National Conference of State Legislatures, awarded the Puget Sound Action Team the **2004 Notable Document award** for the Action Team's Progress Report: ***Mission: Protect and Restore Puget Sound.***

The Legislative Research Librarians called the report an "exceptional example of intergovernmental cooperation."

The Progress Report spells out the intergovernmental cooperation and progress that the 10 state agencies and two university programs, which make up the Action Team, have accomplished in their efforts to protect and restore the Sound.

For a copy of the report visit the Action Team's Web site at **www.psat.wa.gov/Publications/Accomplishments/accomplishments.htm** or call (800) 54-SOUND.

Puget Sound Action Team
P.O. Box 40900
Olympia, WA 98504-0900
(360) 725-5444
(800) 54-SOUND
www.psat.wa.gov

The Puget Sound Action Team is the state's partnership for Puget Sound. The Action Team Partnership defines, coordinates and puts into action the state's environmental and sustainability agenda for the Sound. Representatives from the following groups serve on the Action Team:

Local Government
City of Burien, *representing Puget Sound cities*
Whatcom County, *representing Puget Sound counties*

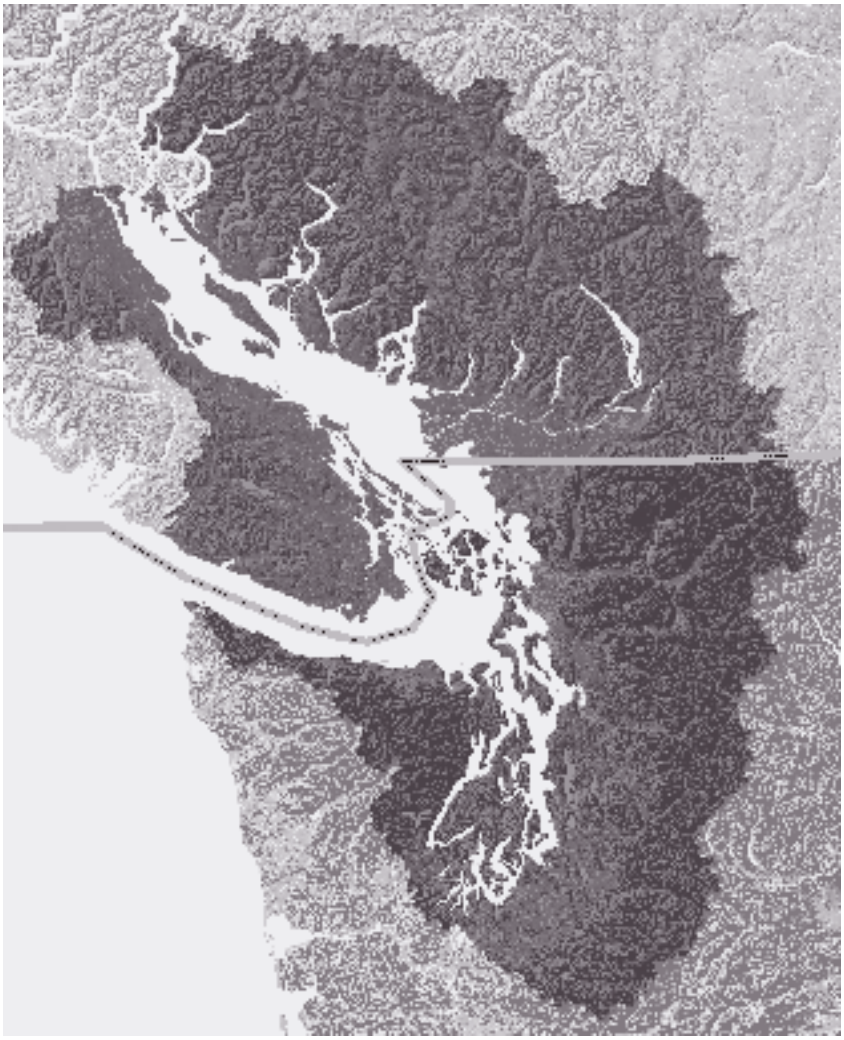
Washington State Government, directors of the following agencies
Community, Trade, and Economic Development
Conservation Commission
Department of Agriculture
Department of Ecology
Department of Fish and Wildlife
Department of Health
Department of Natural Resources
Department of Transportation
Interagency Committee for Outdoor Recreation
Parks and Recreation Commission

Tribal Government
Tulalip Tribes, *representing Puget Sound Tribes*

Federal Government *(Ex-officio)*
NOAA Fisheries
U.S. Environmental Protection Agency
U.S. Fish & Wildlife Service

Chair: Director of Puget Sound Action Team

The **Puget Sound Council** includes representatives from business, agriculture, the shellfish industry, environmental organizations, local and tribal governments and the legislature, and it provides advice and guidance to help steer the Action Team.



Puget Sound Action Team
P.O. Box 40900
Olympia, WA 98504-0900

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